

NPIC/D-49-65

07 APR 1965

MEMORANDUM FOR: Assistant Deputy Director (Intelligence)

SUBJECT : Research and Development Project Approval Request for  
the Development of a Modulated-Light Direct Film Viewer

REFERENCE : DDCI Memorandum ER 63-88121, dated 23 December 1963,  
Approval of Research and Development Activities

25X1 In compliance with paragraph 5.b. of the reference, it is requested  
that the development of a modulated-light direct film viewer in the  
amount of  as outlined in attachment "A" be approved.

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ARTHUR C. LUNDAHL

Director

National Photographic Interpretation Center

25X1 APPROVED:

PAUL A. BOREL

Assistant Deputy Director  
(Intelligence)

9 APR 1965

Date

Declassification Review by NGA/DoD

DATE

15 March 1965

1. PROJECT TITLE/CODE NAME Modulated-Light Direct Film Viewer	2. SHORT PROJECT DESCRIPTION A direct film viewer making use of modulated kinescope illumination to provide selectively dodged illumination of film transparencies on a light table.
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3. CONTRACTOR NAME

4. LOCATION OF CONTRACTOR

5. CLASS OF CONTRACTOR

Manufacturer

6. TYPE OF CONTRACT

CPTT

7. FUNDS

FY 19 \$

8. REQUISITION NO.

9. BUDGET PROJECT NO.

NP-V-15

FY 19 65 \$

10. EFFECTIVE CONTRACT DATE  
(Begin - end)

11. SECURITY CLASS.

FY 19 \$

May 1965 - September 1965

A.A. - Confidential  
T. - Unclassified  
W. - Unclassified

12. RESPONSIBLE DIRECTORATE/OFFICE/PROJECT OFFICER TELEPHONE EXTENSION

DDI/NPIC/P&DS/

13. REQUIREMENT/AUTHORITY

Required for improving the state-of-the-art in direct viewing of film transparencies for exploitation purposes.

14. TYPE OF WORK TO BE DONE

Engineering Development

15. CATEGORIES OF EFFORT

MAJOR CATEGORY

Viewers and Interpretation Equipment

SUB-CATEGORIES

Electronic

Interpretation/Analysis

16. END ITEM OR SERVICES FROM THIS CONTRACT/IMPROVEMENT OVER CURRENT SYSTEM, EQUIPMENT, ETC.

Contract is for the development and production of two identical prototype modulated light direct film viewers. The cost of the first unit, which includes development, is [ ] the cost of the second unit is [ ] No viewer having any similar capability is known to exist.

17. SUPPORTING OR RELATED CONTRACTS (Agency & Other) COORDINATION

This is a new concept and does not duplicate any other effort within the Intelligence Community.

18. DESCRIPTION OF INTELLIGENCE REQUIREMENT AND DETAILED TECHNICAL DESCRIPTION OF PROJECT (Continue on additional page if required)

The unit is intended to fulfill a requirement for an electronically dodged source of illumination for direct viewing of film transparencies. The device will reduce the physiological strain on the human visual system and will also improve the display of photographic information for more efficient and effective exploitation. The selection of this proposal represents the culmination of two years work on the part of the Plans and Development Staff in conceiving and formulating the objectives of such a viewer and three independent feasibility

19. APPROVED BY AND DATE

OFFICE

DEPUTY DIRECTOR

DDCI

SECRET

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18. studies performed by industry under contract to NPIC. The three companies representing industry in this program were [ ]

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[ ] All three of these corporations performed creditable investigations in the state-of-the-art of controlled light spot scanning to define the feasibility of this concept. Final reports have been received from [ ]

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[ ] has requested and received an extension of six weeks which will cause their report to be delivered in the latter part of April; however, all of their investigatory work has been completed and a comprehensive evaluation has been performed by the contract monitor at the corresponding [ ] facility.

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On the basis of contract monitoring visits, the published reports and conferences held at the contractor's request, relative evaluations of these contracts have been made. It is concluded that the work performed by [ ] is of approximately the same significance although considerably different in content; whereas, the work undertaken at [ ] although unique and ingenious in some instances, is somewhat less significant than the other two. The selection of [ ] for the second phase prototype development is on the basis of the fact that they demonstrated more interest in the total program and were obviously the most aggressive in their pursuit. In addition to an excellent investigative phase they performed considerable work in detailing the general design parameters of an operational prototype and projected the significance of their investigation into the realm of the Rear Projection Modulated Light Film Viewer. The concept of the Modulated Light Direct Film Viewer they proposed is comprehensive and responsive to our requirements. In spite of the short term of their proposal (four months vice nine months by [ ] the cost of the [ ] proposal is only two-thirds as great.

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[ ] proposes to build two prototype Modulated Light Direct Film Viewers having the following characteristics:

- a. Overall dimensions approximately 68" wide X 25 - 1/2" deep X 40" high (to table top).
- b. Modulated-light area size 9" x 12".
- c. Kinescope will be a 17" rectangular tube with 27" radius-of-curvature faceplate. The tube is not a production item in that a special high-current gun will be employed. Phosphor type is P4.
- d. A manually operated 9" roll film reel will be provided on each end of the table top, and suitable guide rollers will be furnished.
- e. A [ ] 7X to 30X Stereo Zoom microscope in 360° rotatable arm, mounted on a suitable carriage will be furnished.
- f. Illuminated area peak brightness will be about 1000 ft-lamberts.
- g. Contrast compression will be 30:1.
- h. Scan will be box type i.e. non-unidirectional, and without visible flicker.
- i. Operating controls will be located for easy access and will consist of:

Brightness

Contrast compression gain

Height and Width of illuminated area

Position control of illuminated area.

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- 18.
- j. Complete X-ray protection for the operator will be included in the design.
  - k. The table top will be tiltable to 45°, and turntable can be rotated 360°.
  - l. The equipment will be designed and built in accord with good commercial practice and [ ] Workmanship Standards.
  - m. Drawings will be made (and furnished to the customer if requested) as follows:

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Detailed assembly drawings will be made where practicable i.e. certain parts will be detailed on the assembly drawings rather than on separate detail drawings. Detail drawings (mechanical and electrical) for other fabricated parts will be made where the above procedure is not practicable.

- n. An Operation and Maintenance Manual will be furnished to the customer.
- o. [ ] personnel will assist in initial installation of equipment and instruction of operating personnel, and repair if required for a period of six months.

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On the basis of the feasibility of this concept demonstrated by all of the investigators it is felt that for the nominal additional cost of [ ] the production of two identical prototypes is most prudent. The second prototype may be retained at the contractor's facility for a short period to perform additional investigative work while the first model is under evaluation at NPIC. Later the second model will be made available for operational use.

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Appropriate security channels for this contractor are already established.

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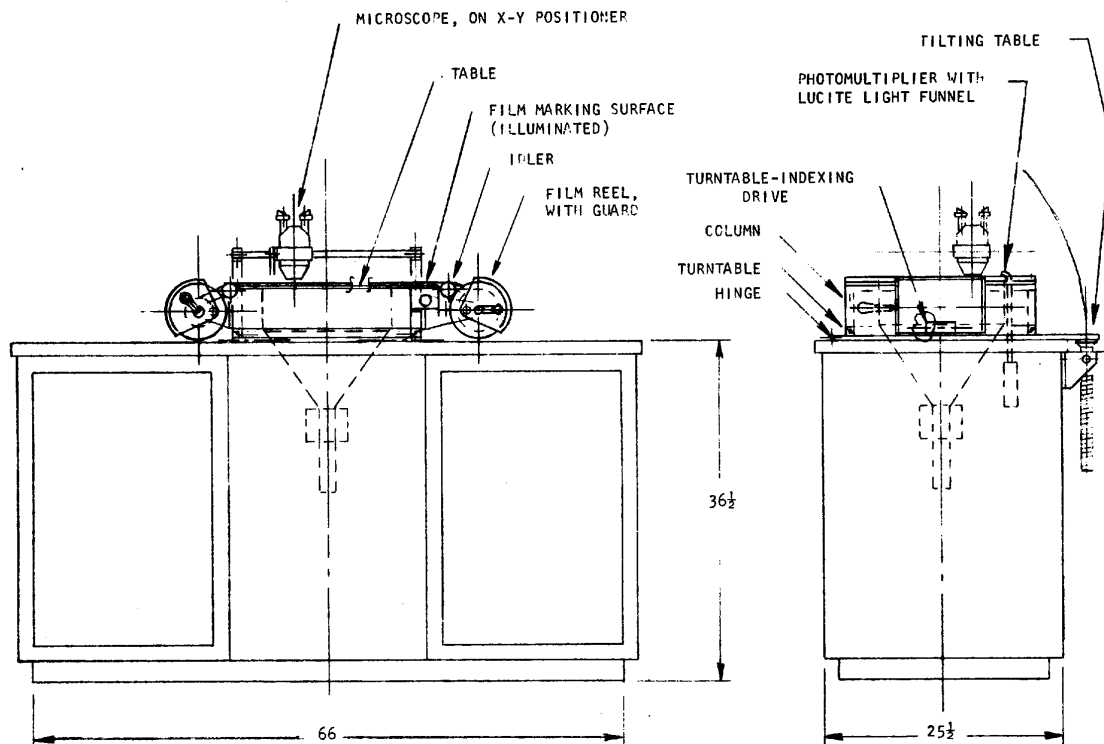


Figure 2. Schematic Representation of Modulated-Light Film Viewing Table

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10 X 10 TO THE 1/2 INCH 359-12  
KEUFFEL & ESSER CO. MADE IN U.S.A.

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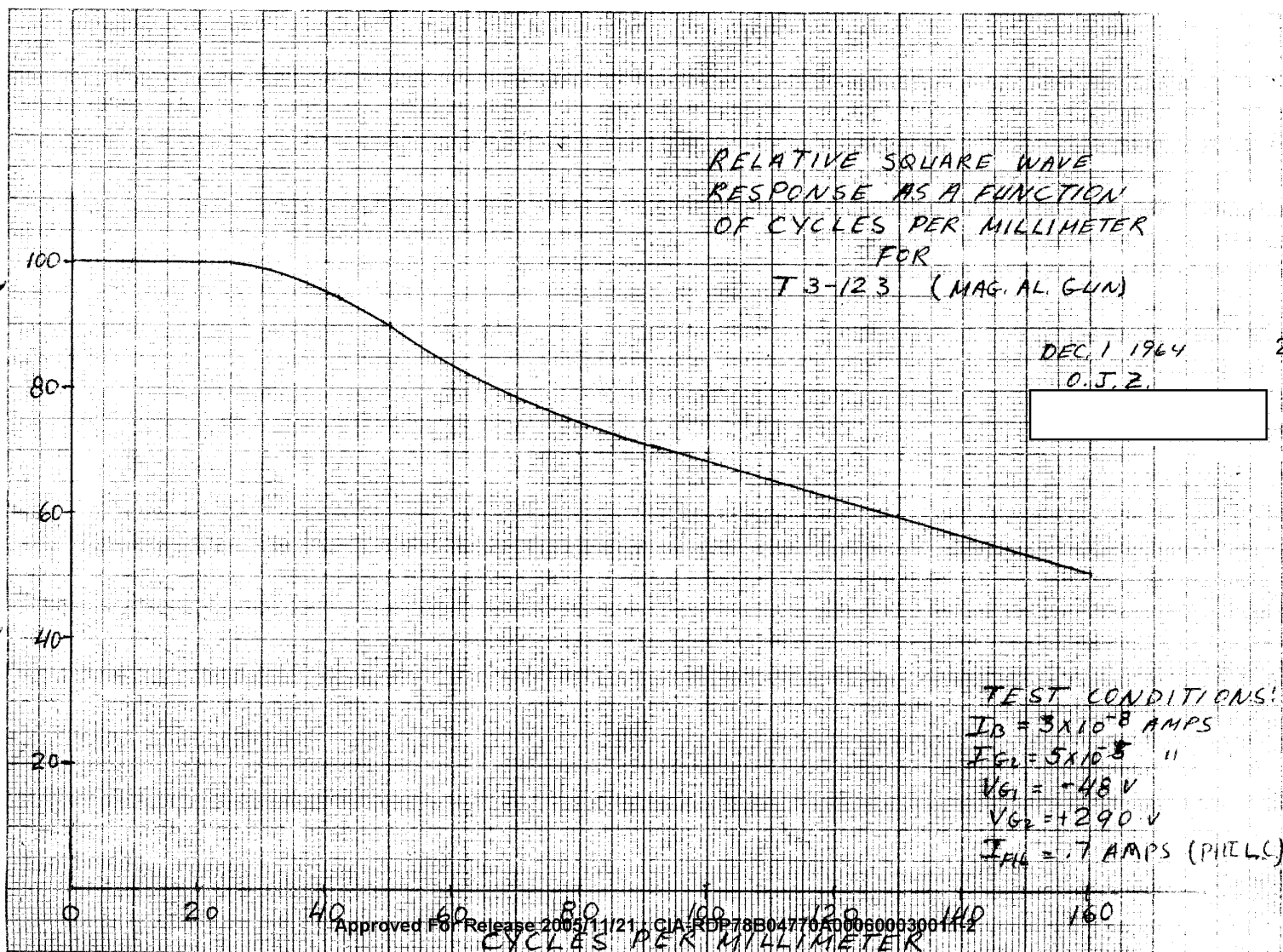
RELATIVE SQUARE WAVE  
RESPONSE AS A FUNCTION  
OF CYCLES PER MILLIMETER  
FOR

T 3-123 (MAG. AL. GUN)

DEC. 1 1964

O. J. Z.

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- 1 Microscope Type Zoom 70
- 2 Microscope Carriage
3. Film Transport
  - a. 70 mm to 9 1/2"
  - 15-5"/sec. single crank/motorized
  - 100ft/min (1). tension 3 #
  - (2). hold down
4. Convenience
  - a. ease and stability of orientation.
  - b. lg room
  - c. simplicity/compactness
  - d. convenience
5. Spot size
6. Brightness range
7. Modulation range w/o perceptible noise
8. Flicker rate

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Prior to contract the following verbal agreements were discussed at length and concurred in.

1. The time and cost proposed were realistic:

a. 4 months

b. \$50 + \$25 @ fixed price

2. The need for simplicity and low cost — to replace a conventional 9" x 18" light table.

3. High quality mechanical engineering.

a. Transport

b. microscope carriage

c. rotation.

10 Oct 65

1. CPAF contract,
2. Feedbacks
3. Microscope
4. 4 month term I questioned  
Fixed Price cost and term
5. We wanted no change after  
kick-off.
6. We agreed on the importance  
of solidifying concepts and  
sticking with them.

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1.  visit last Friday  
parking problem in front  
of Exit gate - told off by  
guard instructed to park there  
by guard.

1. Flat table  
counter-balance  
lowered cabinet

2. Parallelogram pantograph

3. Feed back

4.

998215

NPIC PROJECT NO.

Confidential

CLASSIFICATION

RECEIPT OCB/OS

SUPPORT/SERVICE REQUIREMENT

DISSEMINATED OCB/OS

(The following info is required when rqmts are levied by external organizations)

OFFICE \_\_\_\_\_ DATE OF RQMT \_\_\_\_\_ CONTROL NO. \_\_\_\_\_

NPIC DIV/DETACH PROCESSING RQMT \_\_\_\_\_ PROJ OFF \_\_\_\_\_ PHONE \_\_\_\_\_

SUPPORT REQUESTED OF \_\_\_\_\_ PRIORITY \_\_\_\_\_ DATE REQUIRED \_\_\_\_\_

(The following info is required when rqmts are levied for internal support)

/STAFF P&amp;DS \_\_\_\_\_ DATE OF RQMT 19 Jan '65 \_\_\_\_\_ CONTROL NO. \_\_\_\_\_

SUPPORT REQUESTED OF \_\_\_\_\_ P&amp;DS \_\_\_\_\_ PROJ OFF \_\_\_\_\_ PHONE \_\_\_\_\_

PRIORITY \_\_\_\_\_ DATE REQUIRED 31 July 1966

## 1. BACKGROUND INFORMATION:

- The work requested is in support of a departmental: ☐ Photo interpretation proj.;  
☐ Non-photo interpretation project. It will result in: ☐ Hard copy report;  
☐ Informal report (memo); ☒ Basic service only.

Project Description: Modulated Light Direct Film Viewer

2. SPECIFIC SUPPORT/SERVICE REQUESTED: Support from NPIC will probably consist of:  
☐ Photographic; ☐ Reproduction; ☐ Mensuration; ☐ Graphics; ☐ ADP; ☐ Editing;  
☒ Other (explain below) -- (Include statement as to estimated amount of work required  
 on support component(s); i.e., number of contact prints, enlargements, boards, etc.)

Prepare design objective for a modulated light direct film viewer (design  
 and fabrication of a prototype).

Solicit and evaluate proposals

Recommend TDC action if appropriate

Monitor Contract

Test and evaluate and prepare report

Demonstrate to interested components.

3. URGENCY JUSTIFICATION: (If immediate support is required a statement of justification  
 must be made on this form.)

DATE OF COMPLETION

Confidential

CLASSIFICATION

NPIC FM 218 (4-64)